Practitioner's Docket No.: 789_067 ***PATENT***

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of: Yukihisa TAKEUCHI, Tsutomu NANATAKI, Iwao OHWADA and Takayoshi AKAO

Ser. No.: 09/803,744 Art Unit: Not Assigned

Filed: March 8, 2001 Examiner: Not Assigned

For: METHOD FOR PRODUCING DISPLAY APPARATUS

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail addressed to **Assistant Commissioner for Patents, Washington D.C. 20231** on June 1, 2001.

Elizabeth A. VanAntwerp

Assistant Commissioner for Patents
Washington DC 20231

PRELIMINARY AMENDMENT

Sir:

Prior to examination, Applicants wish to amend the subject application as follows:

In the Specification:

Page 103, second paragraph, please replace with the following:

After that, in the step S402, the display units are ranked on the basis of the obtained characteristic values. The ranking is performed, for example, as shown in FIG. 57A. That is, those having the average luminance of not less than 1000 or the number of deficiencies of not more than 1 belong to the A rank. Those having the average luminance of not less than 900 and less than 1000 or the number of deficiencies of not less than 2 and not more than 5 belong to the B rank. Those having the average luminance of less than 900 or the number of deficiencies of not less than 6 belong to the C rank.

Page 114, fourth paragraph, please replace with the following:

At first, explanation will be made, for example, for the ordinary driving in the second driving unit 200B. As shown in FIG. 67A, when the consideration is made for one dot, the

period in which the OFF signal is to be outputted and the period in which the ON signal is to be outputted are determined depending on the gradation level of the concerning dot.

Page 123, line 27 to page 124, line 5, please replace with the following:

Further, a form of use according to a second specified embodiment is also available. That is, for example, the power source current is monitored in each of the displays 10. Obtained results are periodically transmitted to the central facility 714 as the status information of the respective displays 10.

Page 131, lines 20-27, please replace with the following:

The embodiment described above is illustrative of the case in which the luminance is adjusted by controlling the peripheral units of the display controller 228. Alternatively, as shown in FIG. 78, the luminance may be adjusted by changing the value in the luminance correction table 600 logically allotted in the correction data memory 226 of the display controller 228 (a form of use according to a fifth specified embodiment).

In the Claims:

Please rewrite claims 1-7, 9 and 10-17 as follows:

1. (Amended) A method for producing a display apparatus constructed by arranging a plurality of display units arranged with a plurality of display components, said method comprising the steps of:

displaying a uniform image on said display apparatus to detect luminances of said respective display components;

calculating luminance target values of said respective display components; and

calculating luminance correction coefficients for said respective display components on the basis of said luminance target values of said respective display components.

2. (Amended) The method for producing said display apparatus according to claim 1, wherein said luminance target value is calculated by averaging said luminances of said display component and said plurality of display components arranged therearound, and regarding an obtained average value as said luminance target value of said display component.

3. (Amended) The method for producing said display apparatus according to claim 2, wherein said plurality of display components, which are arranged around said display component, are included in a group of said display components corresponding to $(2m + 1)$ rows aligned in a vertical direction, and they are included in a group of said display components corresponding to $(2n + 1)$ columns aligned in a horizontal direction.

4. (Amended) The method for producing said display apparatus according to claim 3, wherein when M individuals of said display components are arranged in vertical direction, N individuals of said display components are arranged in horizontal direction, and $(M \times N)$ individuals of said display components are provided in total for one of said display units, then m and n satisfy the following expressions provided that α and β are variables of not less than 1 respectively:

$$(1/2)M \leq 2m + 1 \leq \alpha M$$

$$(1/2)N \leq 2n + 1 \leq \beta N.$$

5. (Amended) The method for producing said display apparatus according to claim 4, wherein α and β are set so that said display components, in each of which said luminance correction coefficient exceeds an upper limit value, have a number which is not more than a predetermined number.

6. (Amended) The method for producing said display apparatus according to claim 1, further comprising:

a first step of retrieving said display component which exhibits a minimum value of said calculated luminance target values; and

a second step of increasing said current luminance target value by a certain value for said retrieved display component.

7. (Amended) The method for producing said display apparatus according to claim 1, further comprising the steps of:

retrieving said display component which exceeds a threshold value of said calculated luminance target values; and

decreasing said current luminance target value to said threshold value for said retrieved display component.

9. (Amended) The method for producing said display apparatus according to claim 8, further comprising the steps of:

performing standardization for said calculated luminance target values for said respective display components in accordance with a color scheme respectively;

making amendment so that values obtained after said standardization are included in a certain range; and

performing a restoring process for values obtained after said amendment in accordance with said color scheme respectively to obtain luminance target values in consideration of said color temperature.

11. (Amended) The method for producing said display apparatus according to claim 1, wherein said display unit is a display unit comprising an optical waveguide plate for introducing light from a light source thereinto, and a driving section provided opposingly to a first plate surface of said optical waveguide plate and arranged with said display components of a number corresponding to a large number of picture elements, wherein a screen image corresponding to an image signal is displayed on said optical waveguide plate by controlling a displacement action of an actuator element of said display component in a direction to make contact or separation with respect to said optical waveguide plate in accordance with an attribute of said image signal to be inputted so that leakage light is controlled at a predetermined portion of said optical waveguide plate.

12. (Amended) A method for producing a display apparatus constructed by arranging a plurality of display units arranged with a plurality of display components, said method comprising the steps of:

obtaining characteristic values for said respective display units respectively;

ranking said display units on the basis of said obtained characteristic values;

partitioning an arrangement area (Z10) for said plurality of display units of said display apparatus to designate ranks of said display units to be arranged in respective areas (Z11, Z12); and

arranging said display units in accordance with said designation to manufacture said display apparatus.

13. (Amended) The method for producing said display apparatus according to claim 12, wherein when said ranked display units are arranged in said designated areas (Z11, Z12), said display units, which are ordered in an identical rank, are arranged in accordance with a predetermined rule.

14. (Amended) The method for producing said display apparatus according to claim 12, wherein:

said arrangement area (Z10) for said display units is partitioned into a central portion (Z11) and a peripheral portion (Z12); and

said display units having high ranks are arranged in said central portion (Z11), and said display units having low ranks are arranged in said peripheral portion (Z12).

15. (Amended) The method for producing said display apparatus according to claim 12, wherein:

when said characteristic value includes an average luminance of said plurality of display components for constructing said display unit and a number of deficiencies of said display components;

said ranking is determined by overall evaluation on the basis of a rank based on said average luminance and a rank based on said number of deficiencies.

16. (Amended) The method for producing said display apparatus according to claim 15, wherein:

said arrangement area (Z10) for said display units is partitioned into a central portion (Z11) and a peripheral portion (Z12); and

said display units having high ranks based on said number of deficiencies are arranged in said central portion (Z11), and said display unit having low ranks based on said number of deficiencies are arranged in said peripheral portion (Z12).

17. (Amended) The method for producing said display apparatus according to claim 16, wherein said display units having substantially identical ranks based on said average luminance are arranged in said central portion (Z11) and said peripheral portion (Z12).

REMARKS

Prior to examination, Applicants respectfully request entry of this Amendment in which the specification has been amended to correct minor informalities. Attached hereto, pursuant to Rule 121(b)(1)(iii), is a marked up version showing the changes made to the specification.

Claims 1-17 are pending herein. Applicants have amended the claims to correct matter of form. Pursuant to Rule 121(c)(1)(ii), a marked up version showing the changes to claims are attached hereto. No new matter has been added. Applicants believe the case is now in condition for examination.

If the Examiner believes that contact with applicants' attorney would be advantageous toward the disposition of this case, he is herein requested to call applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

June 1, 2001
Date

Stephen P. Burr
Reg. No. 32,970

SPB/eav

BURR & BROWN
P.O. Box 7068
Syracuse, NY 13261-7068

Customer No.: 025191
Telephone: (315) 233-8300
Facsimile: (315) 233-8320

Changes made to page 103, second paragraph, are as follows:

After that, in the step S402, the display units are ranked on the basis of the obtained characteristic values. The ranking is performed, for example, as shown in FIG. 57A. That is, those having the average luminance of not less than 1000 ~~and~~or the number of deficiencies of not more than 1 belong to the A rank. Those having the average luminance of not less than 900 and less than 1000 ~~and~~or the number of deficiencies of not less than 2 and not more than 5 belong to the B rank. Those having the average luminance of less than 900 ~~and~~or the number of deficiencies of not less than 6 belong to the C rank.

Changes made to page 114, fourth paragraph, are as follows:

At first, explanation will be made, for example, for the ordinary driving in the second driving unit 200B. As shown in FIG. ~~54A~~67A, when the consideration is made for one dot, the period in which the OFF signal is to be outputted and the period in which the ON signal is to be outputted are determined depending on the gradation level of the concerning dot.

Changes made to page 123, line 27 to page 124, line 5, are as follows:

Further, a ~~display system~~form of use according to a second specified embodiment is also available. That is, for example, the power source current is monitored in each of the displays 10. Obtained results are periodically transmitted to the central facility 714 as the status information of the respective displays 10.

Changes made to page 131, lines 20-27, are as follows:

The embodiment described above is illustrative of the case in which the luminance is adjusted by controlling the peripheral units of the display controller 228. Alternatively, as shown in FIG. 78, the luminance may be adjusted by changing the value in the luminance correction table 600 logically allotted in the correction data memory 226 of the display controller 228 (a ~~display system~~form of use according to a fifth specified embodiment).

1. (Amended) A method for producing a display apparatus constructed by arranging a plurality of display units ~~(14)~~ arranged with a plurality of display components ~~(26)~~, said method comprising the steps of:

displaying a uniform image on said display apparatus ~~(10)~~ to detect luminances of said respective display components ~~(26)~~;

calculating luminance target values of said respective display components ~~(26)~~; and

calculating luminance correction coefficients for said respective display components ~~(26)~~ on the basis of said luminance target values of said respective display components ~~(26)~~.

2. (Amended) The method for producing said display apparatus according to claim 1, wherein said luminance target value is calculated by averaging said luminances of said display component ~~(26)~~ and said plurality of display components ~~(26)~~ arranged therearound, and regarding an obtained average value as said luminance target value of said display component ~~(26)~~.

3. (Amended) The method for producing said display apparatus according to claim 2, wherein said plurality of display components ~~(26)~~, which are arranged around said display component ~~(26)~~, are included in a group of said display components ~~(26)~~ corresponding to (2m + 1) rows aligned in a vertical direction, and they are included in a group of said display components ~~(26)~~ corresponding to (2n + 1) columns aligned in a horizontal direction.

4. (Amended) The method for producing said display apparatus according to claim 3, wherein when M individuals of said display components ~~(26)~~ are arranged in vertical direction, N individuals of said display components ~~(26)~~ are arranged in horizontal direction, and (M × N) individuals of said display components ~~(26)~~ are provided in total for one of said

VERSION SHOWING CHANGES MADE

display units ~~(14)~~, then m and n satisfy the following expressions provided that α and β are variables of not less than 1 respectively:

$(1/2)M \leq 2m + 1 \leq \alpha M$

$(1/2)N \leq 2n + 1 \leq \beta N$.

5. (Amended) The method for producing said display apparatus according to claim 4, wherein α and β are set so that said display components ~~(26)~~, in each of which said luminance correction coefficient exceeds an upper limit value, have a number which is not more than a predetermined number.

6. (Amended) The method for producing said display apparatus according to claim 1, further comprising:

a first step of retrieving said display component ~~(26)~~ which exhibits a minimum value of said calculated luminance target values; and

a second step of increasing said current luminance target value by a certain value for said retrieved display component ~~(26)~~.

7. (Amended) The method for producing said display apparatus according to claim 1, further comprising the steps of:

retrieving said display component ~~(26)~~ which exceeds a threshold value of said calculated luminance target values; and

decreasing said current luminance target value to said threshold value for said retrieved display component ~~(26)~~.

9. (Amended) The method for producing said display apparatus according to claim 8, further comprising the steps of:

performing standardization for said calculated luminance target values for said respective display components ~~(26)~~ in accordance with a color scheme respectively;

VERSION SHOWING CHANGES MADE

making amendment so that values obtained after said standardization are included in a certain range; and

performing a restoring process for values obtained after said amendment in accordance with said color scheme respectively to obtain luminance target values in consideration of said color temperature.

11. (Amended) The method for producing said display apparatus according to claim 1, wherein said display unit ~~(14)~~ is a display unit ~~(14)~~ comprising an optical waveguide plate ~~(20)~~ for introducing light ~~(18)~~ from a light source ~~(16)~~ thereinto, and a driving section ~~(24)~~ provided opposingly to a first plate surface of said optical waveguide plate ~~(20)~~ and arranged with said display components ~~(26)~~ of a number corresponding to a large number of picture elements, wherein a screen image corresponding to an image signal is displayed on said optical waveguide plate ~~(20)~~ by controlling a displacement action of an actuator element ~~(22)~~ of said display component ~~(26)~~ in a direction to make contact or separation with respect to said optical waveguide plate ~~(20)~~ in accordance with an attribute of said image signal to be inputted so that leakage light is controlled at a predetermined portion of said optical waveguide plate ~~(20)~~.

12. (Amended) A method for producing a display apparatus constructed by arranging a plurality of display units ~~(14)~~ arranged with a plurality of display components ~~(26)~~, said method comprising the steps of:

obtaining characteristic values for said respective display units ~~(14)~~ respectively;

ranking said display units ~~(14)~~ on the basis of said obtained characteristic values;

partitioning an arrangement area (Z10) for said plurality of display units ~~(14)~~ of said display apparatus ~~(10)~~ to designate ranks of said display units ~~(14)~~ to be arranged in respective areas (Z11, Z12); and

arranging said display units ~~(14)~~ in accordance with said designation to manufacture said display apparatus ~~(10)~~.

VERSION SHOWING CHANGES MADE

13. (Amended) The method for producing said display apparatus according to claim 12, wherein when said ranked display units ~~(14)~~ are arranged in said designated areas (Z11, Z12), said display units ~~(14)~~, which are ordered in an identical rank, are arranged in accordance with a predetermined rule.

14. (Amended) The method for producing said display apparatus according to claim 12, wherein:

said arrangement area (Z10) for said display units ~~(14)~~ is partitioned into a central portion (Z11) and a peripheral portion (Z12); and

said display units ~~(14)~~ having high ranks are arranged in said central portion (Z11), and said display units ~~(14)~~ having low ranks are arranged in said peripheral portion (Z12).

15. (Amended) The method for producing said display apparatus according to claim 12, wherein:

when said characteristic value includes an average luminance of said plurality of display components ~~(26)~~ for constructing said display unit ~~(14)~~ and a number of deficiencies of said display components ~~(26)~~;

said ranking is determined by overall evaluation on the basis of a rank based on said average luminance and a rank based on said number of deficiencies.

16. (Amended) The method for producing said display apparatus according to claim 15, wherein:

said arrangement area (Z10) for said display units ~~(14)~~ is partitioned into a central portion (Z11) and a peripheral portion (Z12); and

said display units ~~(14)~~ having high ranks based on said number of deficiencies are arranged in said central portion (Z11), and said display unit ~~(14)~~ having low ranks based on said number of deficiencies are arranged in said peripheral portion (Z12).

VERSION SHOWING CHANGES MADE

17. (Amended) The method for producing said display apparatus according to claim 16, wherein said display units ~~(14)~~ having substantially identical ranks based on said average luminance are arranged in said central portion (Z11) and said peripheral portion (Z12).